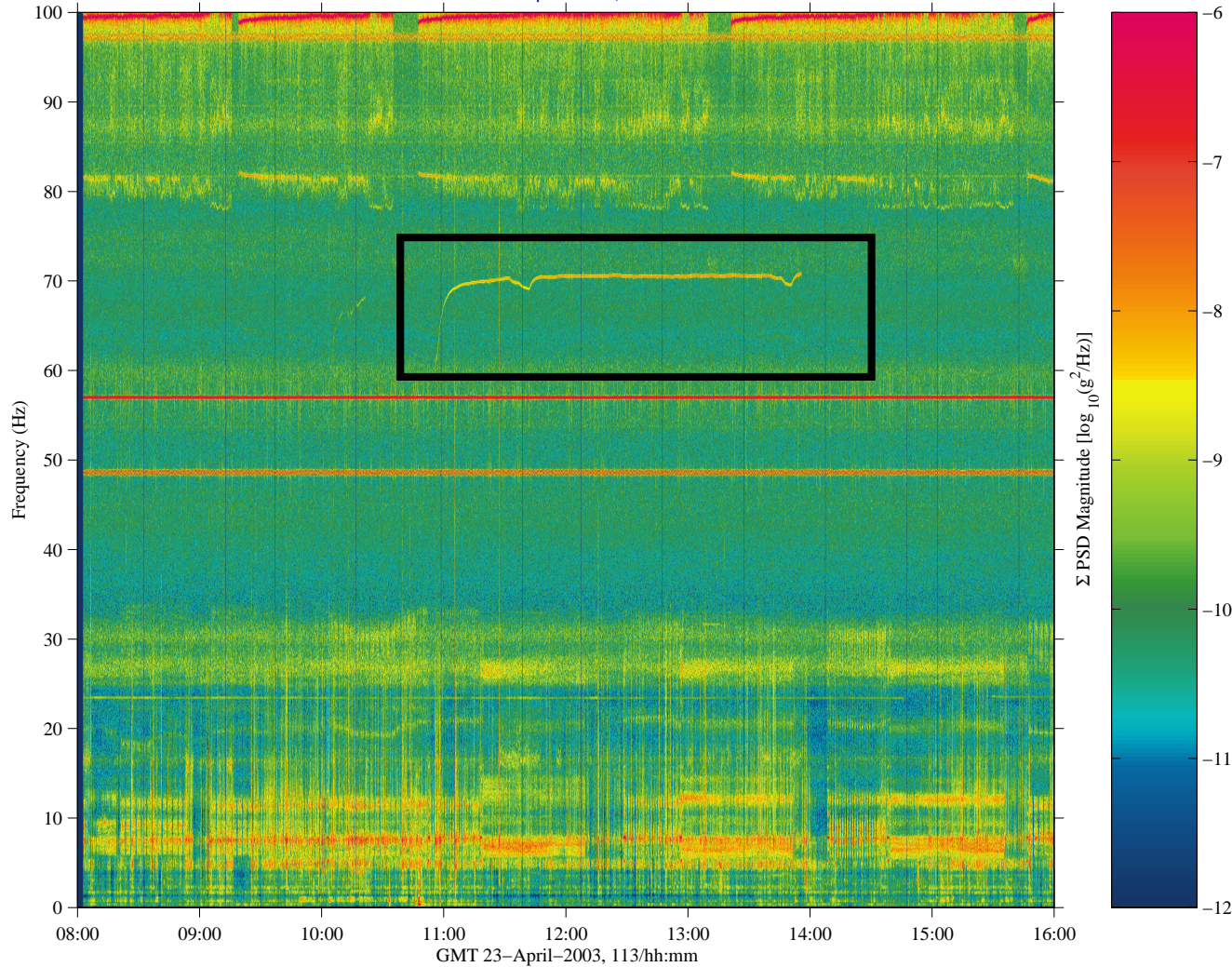


# Periodic Fitness Evaluation (PFE) Qualify

sams2, 121f02 at LAB102, ER1, Drawer 1:[128.73 -23.53 144.15]  
250.0 sa/sec (100.00 Hz)  
 $\Delta f = 0.122$  Hz, Nfft = 2048  
Temp. Res. = 8.192 sec, No = 0

SAMS 121f02

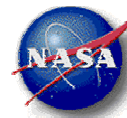
Start GMT 23-April-2003, 113/08:00:00



from: t:\pub\pad, \$Name: S\_27-Mar-2003.06:59:00.584



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## Data Description

Sensor	121f02 250.0 sa/sec (100.00 Hz)
Location	LAB102, ER1, Drawer 1
Inc/Flight	Increment: 6, Flight: 11A
Plot Type	spectrogram

## Notes:

There appears to be at least some tangential correlation between narrowband spectral peaks in the acceleration data and some equipment associated with PFE medical ops. For PFE sessions, the signature is prominent in SAMS 121f02 and MAMS HiRAP data, and to a lesser extent on the SAMS 121f05 sensor. The following observations are based on SAMS 121f02 data:

- GMT 037/06-Feb-03: Relatively strong narrowband signal at ~67 Hz from about 09:17-09:47 and from about 09:58-10:55; CDR 09:13-09:33, FE2 09:56-10:17 [maybe left equipment running after evaluation and remembered to turn it off at 10:55?].
- GMT 082/23-Mar-03: A strong narrowband signal at ~71 Hz (variable in frequency) from about 12:59 to 16:13.
- GMT 113/23-Apr-03: A strong narrowband signal at ~71 Hz (variable in frequency) appears from 10:56-13:55. This signature is shown in the black box of the spectrogram to the left.
- GMT 339/05-Dec-03: Relatively weak narrowband signal at ~56 Hz from about 12:32 to 16:31; CDR 12:50-13:10, FE2 13:34-13:54.

Regime:	Vibratory
Category:	Equipment
Source:	Periodic Fitness Evaluation (PFE)

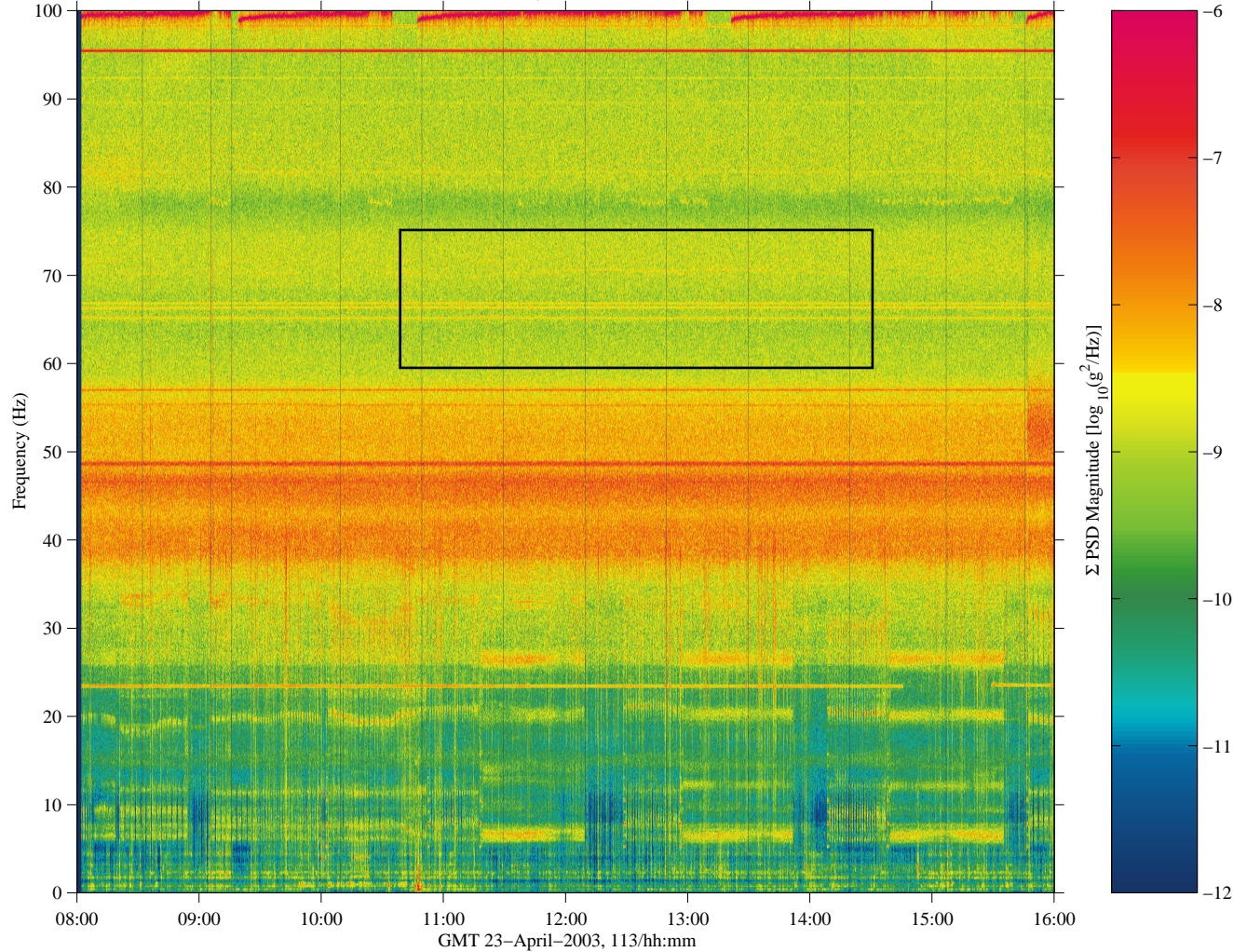


# Periodic Fitness Evaluation (PFE) Qualify

sams2, 121f04 at LAB1O2, ER1, Lower Z Panel:[149.54 -40.54 135.25]  
500.0 sa/sec (200.0 Hz)  
 $\Delta f = 0.122$  Hz, Nfft = 4096  
Temp. Res. = 8.192 sec, No = 0

SAMS2, 121f04

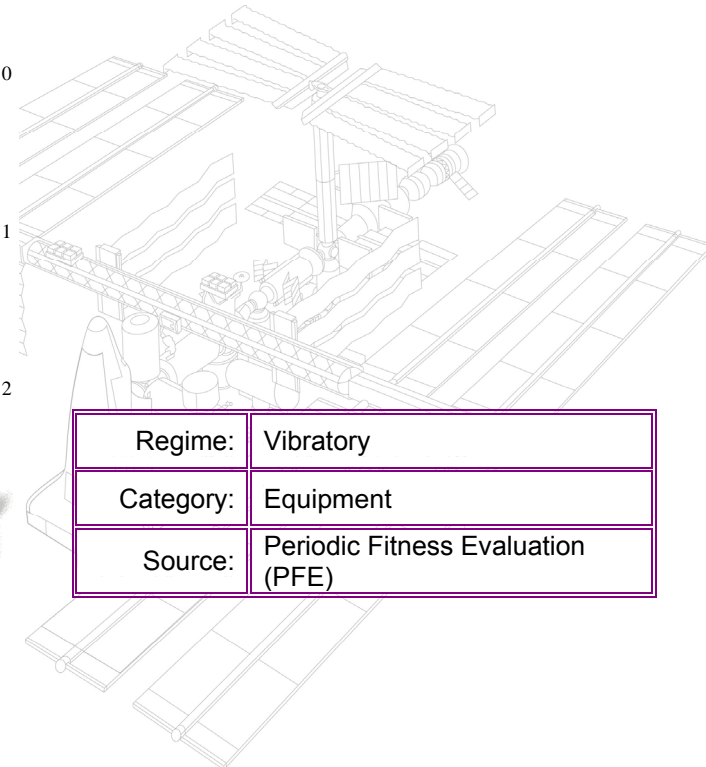
Start GMT 23-April-2003, 113/08:00:00



Data Description	
Sensor	121f04 500.0 sa/sec (200.00 Hz)
Location	LAB1O2, ER1, Lower Z Panel
Inc/Flight	Increment: 6, Flight: 11A
Plot Type	spectrogram

## Notes:

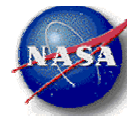
While the spectrogram for the 121f02 sensor (located inside drawer 1 of ER1) showed a prominent signature for PFE activity, this spectrogram for the 121f04 sensor (located on the Z panel of the same rack, ER1) does not show any discernible signature for the same time and frequency range of interest. We do note, however, that the ambient vibratory environment at the Z panel location of the 121f04 sensor is subject to a broadband disturbance that was not seen for the same period and frequency range in the 121f02 data.



Regime:	Vibratory
Category:	Equipment
Source:	Periodic Fitness Evaluation (PFE)



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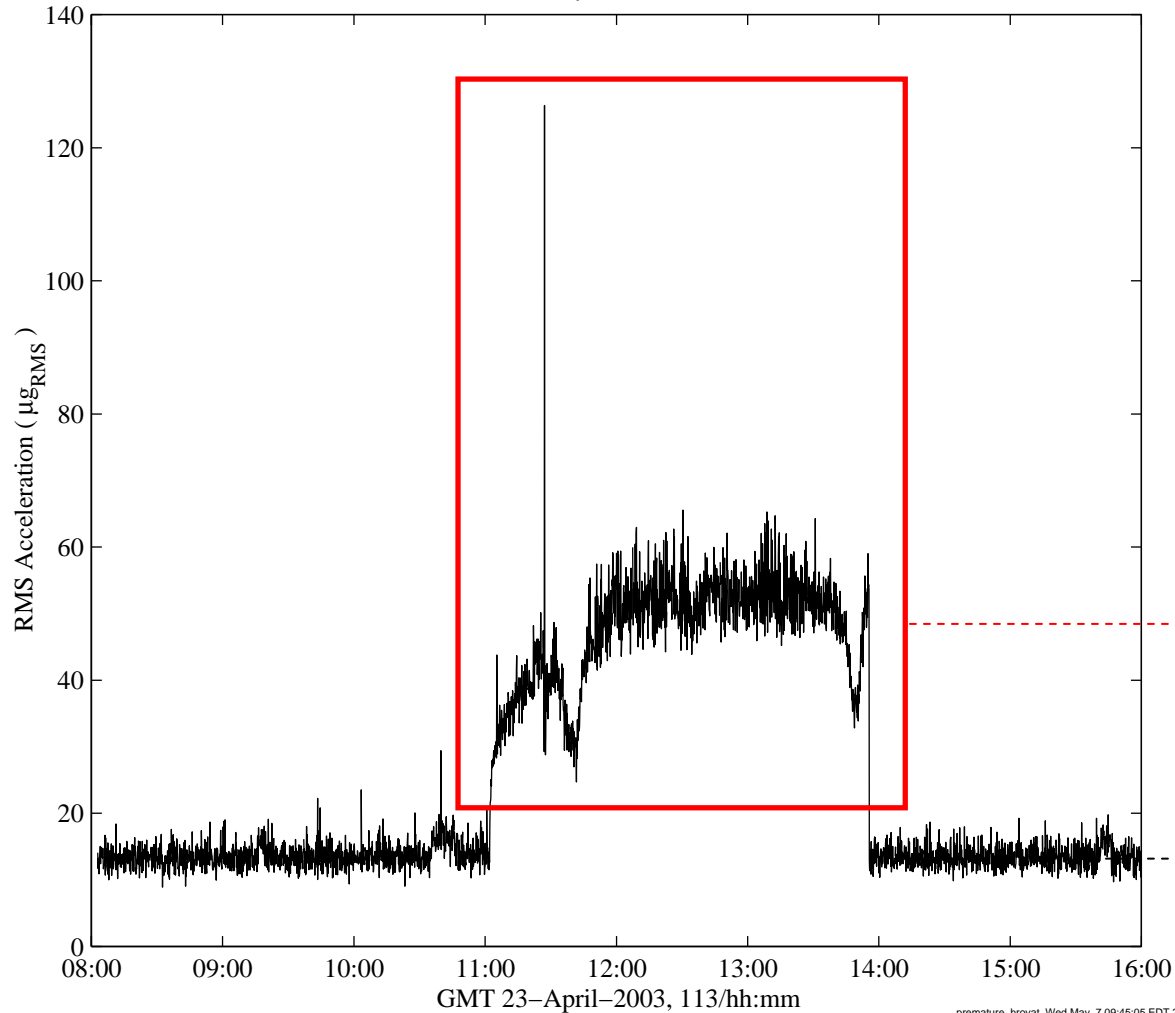
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## Periodic Fitness Evaluation (PFE) Quantify

sams2, 121f02 at LAB1O2, ER1, Drawer 1:[128.73 -23.53 144.15]  
250.0 sa/sec (100.0 Hz)  
 $\Delta f = 0.122$  Hz, Nfft = 2048  
Temp. Res. = 8.192 sec, No = 0

Periodic Fitness Evaluation (PFE),  $68.6 < f < 71.1$  Hz  
Start GMT 23-April-2003, 113/08:00:00

sum  
Hanning, k = 3483  
Span = 8.00 hours



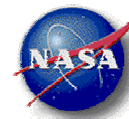
Data Description	
Sensor	121f02 250.0 sa/sec (100.00 Hz)
Location	LAB1O2, ER1, Drawer 1
Inc/Flight	Increment: 6, Flight: 11A
Plot Type	Interval RMS

### Notes:

For the PFE activity on GMT 113/23-Apr-03, the strong narrowband signal at ~71 Hz that appeared from 10:56-13:55 was analyzed and quantified in terms of the RMS level for the frequency band from 68.6 to 71.1 Hz. The median RMS level calculated for the period shown in the interval RMS plot at the left was 13.5  $\mu\text{g}_{\text{RMS}}$  when the PFE equipment was off, and 49.6  $\mu\text{g}_{\text{RMS}}$  when the equipment was on (as marked by the red box).



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Regime:	Vibratory
Category:	Crew
Source:	Periodic Fitness Evaluation (PFE)

## Periodic Fitness Evaluation (PFE) Quantify

sams2, 121f04 at LAB1O2, ER1, Lower Z Panel:[149.54 -40.54 135.25]

500.0 sa/sec (200.0 Hz)

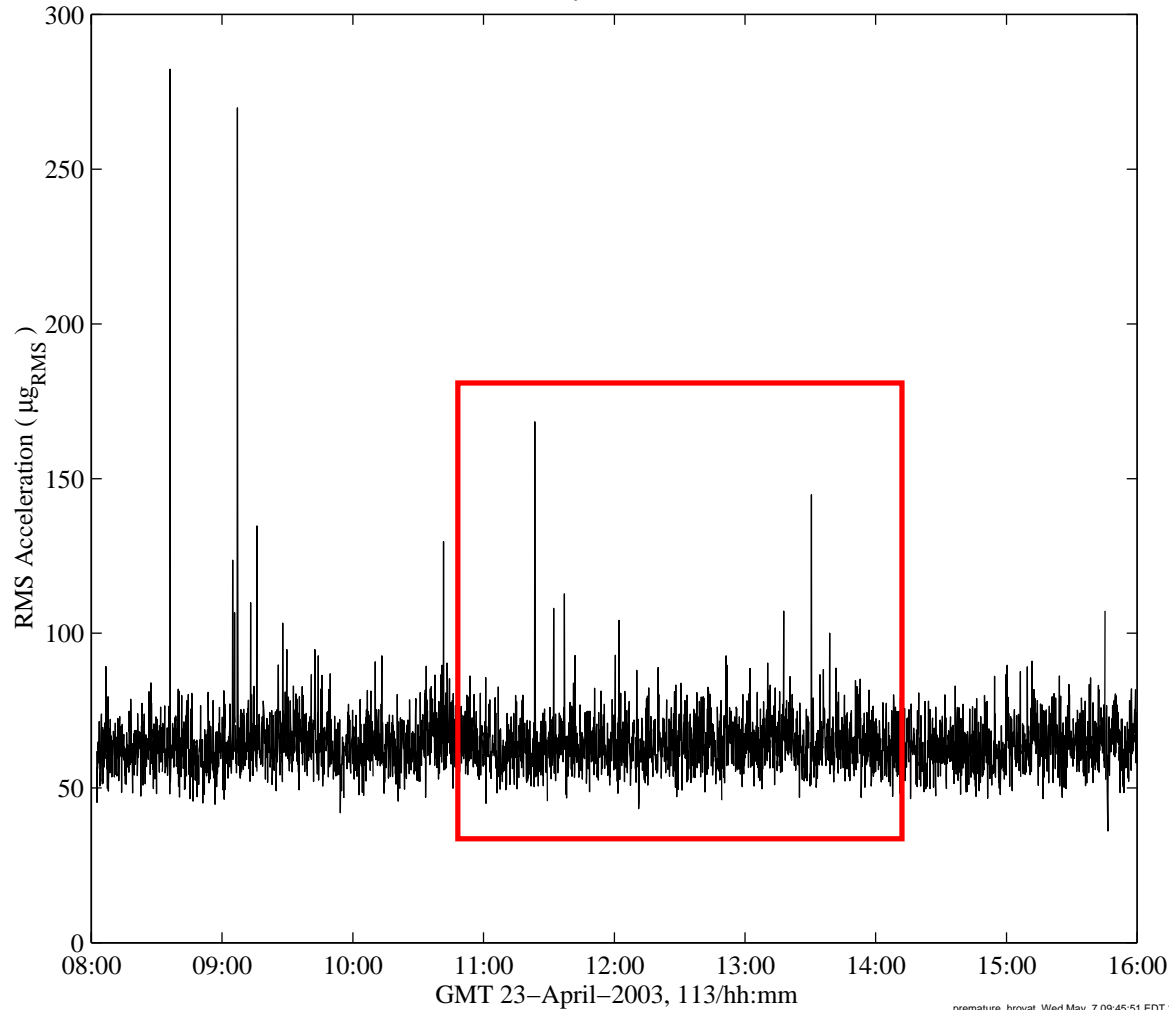
$\Delta f = 0.122$  Hz, Nfft = 4096

Temp. Res. = 8.192 sec, No = 0

SAMS2, 121f04,  $68.6 < f < 71.1$  Hz

Start GMT 23-April-2003, 113/08:00:00

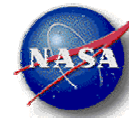
sum  
Hanning, k = 3488  
Span = 8.00 hours



premature, hrovat, Wed May 7 09:45:51 EDT 2003



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### Data Description

Sensor	121f04 500.0 sa/sec (200.00 Hz)
Location	LAB1O2, ER1, Lower Z Panel
Inc/Flight	Increment: 6, Flight: 11A
Plot Type	Interval RMS

### Notes:

While the interval RMS plot for the 121f02 sensor (located inside drawer 1 of ER1) showed a prominent signature for PFE activity, this same analysis performed for the 121f04 sensor (located on the Z panel of the same rack, ER1) does not show any discernible shift up from the baseline RMS level. The same period that showed this upward shift in the 121f02 data is again marked by a red box here. The median RMS level calculated for the entire 8-hour period period shown in the interval RMS plot at the left was  $63.6 \mu g_{RMS}$ . Recall for the 121f02 sensor data, that the baseline was  $13.5 \mu g_{RMS}$  when the PFE equipment was off, and  $49.6 \mu g_{RMS}$  when the equipment was on. This disturbance is effectively overwhelmed by the ambient environment and not readily detected at this Z panel location. We cannot say that it is not transmitted to this location, it's just that we cannot detect it against the background vibrations here.

Regime:	Vibratory
Category:	Crew
Source:	Periodic Fitness Evaluation (PFE)